Case Report

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Aesthetic Anterior Reconsturction Using Ovoid Pontic Design by Gingival Contouring: A Case Report

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ABSTRACT

Background: In today's busy world, most patients do not have time for long, drawn-out dental treatment. The time span between loss of tooth in the anterior aesthetic zone due to traumatic accident and replacement of lost teeth can be aesthetically and psychologically devastating on the part of the patient. Especially, when a maxillary anterior tooth lost accidentally, the immediate tooth replacement with an ovate pontic on a provisional bridge is a good alternative. Ovate pontic helps in preservation of the interdental papilla, which in turn preserves the natural gingival contour that would have otherwise been lost after extraction. An immediate tooth replacement using ovate pontic not only eliminates the psychologically disturbing partially edentulous phase but also results in a much more aesthetically pleasing replacement of tooth that is both hygienic and natural in appearance. Another added advantage of the use of ovate pontic is that it rules out the dissatisfaction resulting from an aesthetic ridge lap pontic placed directly over edentulous ridge. Just like the long-lived bird "Phoenix," arising out of its own ashes, the ovate pontic creates an illusion that the pontic is emerging from the gingiva, even after tooth loss. This case report discusses about replacement of lost maxillary anterior teeth with gingival and alveolar bone recountouring followed by immediate provisionalization with ovoid pontic to reproduce aesthetically pleasing natural appearance to the patient.

Keywords: Ovate pontic, gingival contouring, non-rigid connectors.

INTRODUCTION

One of the most challenging issues in a dental treatment is to preserve interproximal soft tissue and to avoid alveolar bone from collapse after the extraction of a tooth.it is important to preserve the socket size, shape and the space of the gingival tissue in order to maintain the tissue height and provisional pontic immediately in the extraction socket.

The shape and form a ponitc is not only the important criteria to be taken in to account for the good outcome , the contours of the gingival tissue are also an important factor .

Pontic should support the gingival contours and eliminate black triangle.

Prosthetists frequently face the complex challenge of substituting teeth in edentulous areas, where the pontic shape must fulfil functional, periodontal and aesthetic requirements. Treatments carried out with no proper former case planning cause important defects in the periodontal architecture of the alveolar process, as mentioned by Herbert and

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Fig 1: Preoperative Photograph Showing Missing Maxillary Right Central Incisor, Left Central, Lateral Incisor And First Premolar.

Fig 2: Surgical Phase Of Gingival Recontouring And Bone Recontouring in 11 22 And 23 Region.

Fig 3: Provisional Restoration Given After Surigical Phase.

Fig 4: Healing Phase Of Contoured Sockets After One Week Of Recall Check Up.

Fig 5: Healing After 2-week of Recall Check Up.

Fig 6: Healing After 3-4 Week Recall Check Up.

Fig 7: Final Metal Ceramic Prosthesis with Good Eshtablished Interdental Papilla.

Fig 8: Non-Rigid Connector With Key And Key-Way Type.

Fig 9: Post operative picture.

Seibert, who provide a classification of these defects.

Stein and Kuwata were the first to use the term "emergence profile" in 1977 to describe the contours of tooth and crown as they traversed through soft tissue and rose interproximal toward the contact area and height of contour facially and lingually. An ideal emergence profile is vital for maintaining gingival health and developing aesthetics.

An improperly created emergence profile creates a protected area that encourages plaque accumulation and is more difficult to clean, leading to marginal inflammation whereas contralateral teeth that have not been restored remains healthy. Careful attention to developing the proper emergence profile in the final restoration will help reduce plaque retentive areas and will thus reduce iatrogenic inflammation. This, in turn, prevents the unsightly dark spaces and triangles in the area near the gums and between the teeth. A proper emergence profile becomes even more important if the restoration is planned in the anterior maxilla or if the patient has a high smile line. The ovate pontic has been suggested as a more accurate duplication of emergence profile for natural teeth to provide aesthetics, the goal of which is to create an illusion that the tooth is emerging from the gingiva with a cuff of tissue surrounding it on the facial aspect.

CASE REPORT

A Patient aged 19-years came to the department of prosthodontics G.PULLAREDDY DENTAL COLLEGE AND HOSPITAL with a chief complaint to replace his missing front teeth. The patient has lost his upper front teeth i.e., 11 21 22 24 due to trauma from a bike accident approximately 2 months before coming to the department of prosthodontics. Upon clinical examination, the patient showed moderate gingivitis around the cervical area of the abutment tooth. Treatment plan originally contemplated rehabilitation through a dental implant . But due to financial reasons , metal ceramic fixed dental prosthesis with key and keyway type of non - rigid connector in 24 region has been planned. Likewise , gingival recontouring in the anterior maxillary was recommended to restore an ideal contour to the periodontal architecture of the alveolar process as well as its general periodontal treatment.

Once the treatment plan was selected , in order to give immediate provisional prosthesis for this purpose a silicon guide was prepared using polyvinyl silicon impression material before tooth preparation on preliminary diagnostic cast which has been taken for diagnostic purpose so as the patient ready for the periodontal surgery. Tooth preparation has been done in relation to 12 ,13 ,23, 25 region.

The gingival contouring of anterior maxillary area in relation to 11, 21,22 region was performed with a number 11 scalpel blade followed by gingival contouring and the alveolar bone recontouring was done using foot ball shaped diamond point to recreate the exact socket contour, this scalloped architecture of interproximal bone forming the extraction socket is essential for proper papilla form, and facial bone levels in the prevention of alveolar collapse.

Once the desired periodontal architecture contour was achieved, the provisional prosthesis was augmented through the use of jet acrylic into the mouth by using pre-prepared silicone guide. It was trimmed, perfectly polished and provisionally cemented with tempo-bond cement.

During this healing period general periodontal treatment was maintained. One week healing period was observed. Establishment of the gingival contour and the interdental papilla has been observed. In second recall appointment after one week the gingival portion of the pontic is built up with composite restorative material, to prevent plaque accumulation and to give a smooth finish and cemented with tempo bond cement and the gingival portion was allowed to heal for period of 3-4 weeks.

After 3-4 weeks of healing period an impression was taken for final prosthesis with the use of polyvinylsilioxane. Once the prosthesis was finished, it was tried in the mouth and shape , marginal proximal and incisal contours, texture and marginal sealing was assessed. The final prosthesis has been cemented using glass ionomer cement. With the use of both periodontal and prosthetic techniques, the result in a natural appearance fixed partial denture prosthesis, which creates an illusion of the pontic emerging through gingiva. The use of ovoid pontic technique allows for functional and favourable aesthetics.

DISCUSSION

Preserving interproximal soft tissues and prevention of alveolar bone collapse following traumatic acciedent still remains a challenge. It is essential to preserve the socket dimensions, shape, and the gingival tissue height, with techniques utilizing connective tissue grafts, and membranes with or without the bone grafts, or provisionalization with a pontic that supports the gingival contours and eliminates the “black triangle.” Patients increasingly demand natural looking appearance. It is therefore necessary to use all possible resources to obtain predictable functional and aesthetic results, especially in areas where aesthetic is a priority. With the advent of new systems and dental materials for the manufacturing of prostheses, it is possible to attain the desired success; that includes satisfaction of the patient, the dentist and the dental laboratory through a precise diagnosis and proper inter communication.

This case report assess gingival tissue under pontic moderate pressure, preserving the tissue health free from inflammation and allowing as well the appearance of pontic emergence from the inside of the gingival tissue.

In this case, ovate pontic design was intended to form a concave soft-tissue outline in the site of the alveolar ridge mucosa for a satisfactory aesthetic outcome. The tissues were sculpted for guided papilla growth and stabilization.

Advantages of the use of ovate pontics in anterior aesthetic zone:

1. Preservation of the interdental papilla and natural gingival contour
2. Eliminates the psychologically disturbing partially edentulous phase
3. Hygienic and aesthetically pleasing replacement natural in appearance
4. Rules out the dissatisfaction resulting from an un aesthetic ridge lap pontic
5. Eliminates un aesthetic “black triangles.”

Instructions to the patient during the temporization phase regarding cleaning and need for regular recalls have to be emphasized. Failure to address this vital issue resulted in the loss of tissue contour and an additional chairside procedure was

performed prolonging the treatment time. So as to replicate the gingival contour and to develop an appropriate gingival profile, the transfer of sculpted tissue beneath the provisional restoration accurately, is critical.

CONCLUSION

It is extremely important to recognize in advance the various potential outcome possibilities that exist as a result of each patient's presenting condition to make the most informed and realistic decisions about the best treatment options. The control of the gingival contours is just as important as the form of the teeth for a desired outcome.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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